



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,614	10/10/2001	Yasuhiro Yamauchi	5576-96CT	9982
20792	7590	03/24/2004	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC PO BOX 37428 RALEIGH, NC 27627			KERNS, KEVIN P	
			ART UNIT	PAPER NUMBER

1725

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/975,614	YAMAUCHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Kevin P. Kerns	1725	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-16 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/266,388.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/10/01</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because the y-axis of the graph of Figure 2 is incorrectly labelled PRESSURE(ata), but instead should be labelled PRESSURE(kgf/cm<sup>2</sup>). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The disclosure is objected to because of the following informalities: on page 1 of the preliminary amendment, the status of parent application 09/266,388, previously indicated as "allowed", should be updated to include its current status as US Patent No. 6,322,761. Appropriate correction is required.

### ***Claim Objections***

4. Claim 11 is objected to because of the following informalities: between the 6<sup>th</sup> and 7<sup>th</sup> lines of claim 11, there is a missing line of text, presumably meant to contain the same language as that of claims 10 and 12 (see claims 10 and 12 that do include this missing line). Appropriate correction is required.

### ***Double Patenting***

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 10-16 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,322,761. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims include a reaction vessel for decomposing PCB, a feed pipe for feeding PCB and a solvent, an injector connected to the reaction vessel for supply of water and sodium hydroxide, and a nozzle connected to the bottom

of the reaction vessel for supply of air and/or oxygen, with the feed pipe including a connection to the flow path between an end of the injector connected to the reaction vessel and the suction port of the injector (for supplying water and sodium hydroxide at an appropriate pH). Although claims 10-16 of the present application do not include the cyclone separator, as set forth in claim 1 of US 6,322,761, it would have been obvious to one of ordinary skill in the art to exclude this additional structural limitation, as open-ended "comprising" language exists in the present application.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10-12 recite the limitations "the connected end" and "the suction port". There is insufficient antecedent basis for these limitations in the claims. Furthermore, it is unclear which end is meant to correspond to "the connected end" and "the suction port", as both ends are connected to other structures and also in a suction environment.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

10. Claims 10-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Molerus et al. (US 4,931,260).

Molerus et al. disclose a fluidized bed reactor that includes the following structures: a reaction vessel (reactor 20); a cyclone separator 14; a recycling conduit 11; an injector 7 connected to reaction vessel 20; a feed pipe 26 connected to the flow path between a connected end (to reaction vessel 20) of injector 7 and a suction port 12 (above recycling connecting portion 16); and a nozzle connected to the bottom of the reaction vessel 20 (abstract; column 4, lines 3-68; column 5, lines 1-59; column 6, lines 27-65; column 7, lines 14-68; column 8, lines 1-68; column 9, lines 1-68; column 10, lines 1-22; and Figures 1-3). With regard to the use of the reactor for decomposing PCB (claims 10-16), the use of the nozzle to supply air and/or oxygen (claims 10-16), the use of a feed pipe for feeding PCB and a solvent to the reaction vessel (claims 10-12), the use of an injector for injecting water and sodium hydroxide into the reaction vessel (claims 10-12), and the supply of sodium hydroxide to form sodium carbonate at an amount that does not cause excess sodium carbonate to precipitate (claim 13), a

recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

11. Claims 13-16 are rejected under 35 U.S.C. 102(b) and/or 35 U.S.C. 102(a) as being anticipated by the applicants' admitted prior art (specification; page 1, line 13 through page 3, line 17; and Figure 3). Note: the applicants' admitted prior art does not provide any indication of a date that the prior art was known to be applicable as a conventional reactor for a PCB decomposition system, and the applicants are requested to provide the prior art date of the conventional PCB decomposition system.

The applicants' admitted prior art discloses a PCB decomposition system that includes a reaction vessel 21, a feed pipe 23 for feeding a mixture 22 of water, PCB, mineral oil, and sodium carbonate to the vessel 21, an a gas supply nozzle 32 that supplies air and/or oxygen 31 through the bottom of the reaction vessel 21 (specification; page 1, line 13 through page 3, line 17; and Figure 3). With regard to the supply of sodium hydroxide to form sodium carbonate at an amount that does not cause excess sodium carbonate to precipitate, as set forth in claim 13, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

12. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Thyagarajan (US 4,612,404).

Thyagarajan discloses a process and apparatus for decomposing polychlorinated biphenyls (PCB's), in which the apparatus includes a reaction vessel 10 for reacting PCB's with an alkali metal hydroxide, such as sodium hydroxide (abstract; column 1, lines 11-15; column 2, lines 5-68; column 3, lines 1-16, 31-48, and 66-68; column 4, lines 1-49; column 6, lines 18-56; column 7; lines 25-28; and Figure). With regard to the supply of sodium hydroxide to form sodium carbonate at an amount that does not cause excess sodium carbonate to precipitate, as set forth in claim 13, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

13. Claims 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Ross et al. (US 5,746,926).

Ross et al. disclose an apparatus and method for decomposing halogenated organic compounds, including polychlorobiphenyl (PCB) compounds, with the apparatus including a reaction vessel (15,16) and a nozzle for introducing air and/or oxygen 17 into the bottom of the reaction vessel, with the vessel containing sodium carbonate and water 14 (abstract; column 3, lines 6-67; column 4, lines 1-67; column 5, lines 1-18;



column 8, lines 10-36 and 57-67; column 9, lines 1-48; column 10, lines 30-35; and Figures 2 and 4). With regard to the supply of sodium hydroxide to form sodium carbonate at an amount that does not cause excess sodium carbonate to precipitate, as set forth in claim 13, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

14. Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Sako et al. (US 6,124,519).

Sako et al. disclose a method of decomposing polychlorobiphenyls (PCB's) contained in oil, in which the PCB's are mixed in a reaction vessel (reactor of column 2, line 7) with an appropriate molar amount of sodium hydroxide and water (abstract; column 1, lines 38-45; column 2, lines 7-67; and column 3, lines 1-14). With regard to the supply of sodium hydroxide to form sodium carbonate at an amount that does not cause excess sodium carbonate to precipitate, as set forth in claim 13, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

**Conclusion**

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hatano et al. and two Yamauchi et al. references are also cited.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns* 3/17/04  
Examiner  
Art Unit 1725

*KPK*  
kpk  
March 17, 2004